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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,047	07/31/2001	Ramesh Nagarajan	14-11	4255

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EXAMINER

CURS, NATHAN M

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/919,047	Applicant(s) NAGARAJAN ET AL.	
	Examiner Nathan Curs	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 3-7, 9-15, and 17-21 are rejected under 35 U.S.C. 102(a) as being anticipated by Wei et al. ("Just-in-time signaling for WDM optical burst switching networks"; Wei et al.; Journal of Lightwave Technology, Vol. 18, Issue 12, Dec 2000, Pages 2019-2037).

Regarding claim 1, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: initiating a cross-connect with an adjacent node; sending a connection setup message, to a next node before the cross-connect is completed; and completing the cross-connect with the adjacent node without waiting for completion of any downstream cross-connects (page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 3, Wei et al. disclose the method according to claim 1, wherein the network is an optical transport network (page 2019, Abstract).

Regarding claim 4, Wei et al. disclose the method according to claim 3, wherein the cross-connect is selected from the group consisting of an electrical-based cross-connect and a transparent wavelength-based optical cross-connect (page 2021, col. 1, lines 26-48).

Regarding claim 5, Wei et al. disclose the method according to claim 1, wherein the connection setup is a wavelength-based connection setup (page 2021, col. 1, lines 26-48).

Regarding claim 6, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the connection setup comprising a forward pass of signaling messages from the source node to the destination node and a reverse pass of signaling messages from the destination node to the source node, the method comprising the steps of: initiating a cross-connect with an adjacent node on the forward pass of the connection setup; and sending a connection setup message to a next node before the cross-connect is completed; and checking if the cross-connect was successful on the reverse pass of the connection setup (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the SETUP signal initiates a cross-connect on the forward pass and the CONNECT signal, sent on the reverse pass, confirms the cross-connect was successful.

Regarding claim 7, Wei et al. disclose the method according to claim 6, wherein the forward pass and reverse pass of signaling messages occurs out-of-band (page 2019, col. 2, lines 2-8).

Regarding claim 9, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: sending a connection setup message to a next node before a cross-connect is completed; and performing the cross-connect with a downstream node prior to receipt of a signaling message related to a status of at least one cross-connect operation performed at another downstream node (page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 10, Wei et al. disclose a method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of: sending a connection setup message to a next node from an upstream node before a cross-connect at the upstream node is completed; and responsive to the received connection

setup message, executing a cross-connect with a downstream node whereby a cross-connect at the downstream node is initiated (page 2028, col. 2, line 15 to page 2029, col. 1, line 28).

Regarding claim 11, Wei et al. disclose apparatus comprising: a communications interface for providing signaling to a downstream node and for receiving signaling from an upstream node; and a processor, responsive to receipt of a connection setup message sent from the upstream node before a cross-connect at the upstream node is completed, for performing a cross-connect with the downstream node prior to receipt of a signaling message from the downstream node related to a status of at least other cross-connect operation related to the connection setup (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor.

Regarding claim 12, Wei et al. disclose the apparatus according to claim 11, wherein the upstream node and the downstream node are in an optical transport network (page 2019, Abstract).

Regarding claim 13, Wei et al. disclose the apparatus according to claim 12, wherein the cross-connect is selected from the group consisting of an electrical-based cross-connect and a transparent wavelength-based optical cross-connect (page 2021, col. 1, lines 26-48).

Regarding claim 14, Wei et al. disclose the apparatus according to claim 11, wherein the connection setup is a wavelength-based connection setup (page 2021, col. 1, lines 26-48).

Regarding claim 15, Wei et al. disclose the apparatus according to claim 11, wherein the signaling occurs out-of-band (page 2019, col. 2, lines 2-8).

Regarding claim 17, Wei et al. disclose apparatus comprising: a communications interface for receiving signaling sent from an upstream node before a cross-connect at the upstream node is completed on a forward pass of a connection setup and receiving signaling from a downstream node on a reverse pass of the connection setup; and a processor for

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initiating a cross-connect with the downstream node on the forward pass, and for checking if the cross-connect was successful on the reverse pass (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor, and where the SETUP signal initiates a cross-connect on the forward pass and the CONNECT signal, sent on the reverse pass, confirms the cross-connect was successful.

Regarding claim 18, Wei et al. disclose apparatus comprising: a communications interface for receiving a connection setup message sent from an upstream node before a cross-connect at the upstream node is completed; and a processor for executing a cross-connect with a downstream node and for sending, through the communications interface, a connection setup message to the downstream node, whereby a cross-connect at the downstream node is initiated (page 2028, col. 2, line 15 to page 2029, col. 1, line 28), where the JIT signaling agent is a processor and communications interface.

Regarding claim 19, Wei et al. disclose apparatus as in claim 1, wherein the set-up message is sent from an intermediate node (figs. 4 and 5, which show sending the setup message downstream in advance of cross-connect completion for all nodes including the intermediate nodes).

Regarding claim 20, Wei et al. disclose the method as in claim 6, wherein the set-up message is sent from an intermediate node (figs. 4 and 5, which show sending the setup message downstream in advance of cross-connect completion for all nodes including the intermediate nodes).

Regarding claim 21, Wei et al. disclose the apparatus as in claim 9, wherein the set-up message is sent from an intermediate node (figs. 4 and 5, which show sending the setup message downstream in advance of cross-connect completion for all nodes including the intermediate nodes).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wei et al. ("Just-in-time signaling for WDM optical burst switching networks"; Wei et al.; Journal of Lightwave Technology, Vol. 18, Issue 12, Dec 2000, Pages 2019-2037) in view of Qiao et al. ("Just-Enough-Time (JET): a high speed protocol for bursty traffic in optical networks"; Qiao et al.; Technologies for a Global Information Infrastructure, 1997 Digest of the IEEE/LEOS Summer Topical Meetings, 11-15 Aug. 1997, Pages 26-27).

Regarding claims 8 and 16, Wei et al. disclose the method and apparatus according to claims 6 and 16, respectively, and disclose forward pass and reverse pass of signaling (page 2028, col. 2, line 15 to page 2029, col. 1, line 28). Wei et al. also discussing in-band signaling (page 2021, col. 2, lines 11-17 and page 2022, col. 1, lines 9-21), but do not elaborate on in-band signaling in their example of JIT signaling. Qiao et al. disclose an implementation of JIT signaling using in-band signaling (page 26, section 2), where the Qiao et al. system is not a WDM system and thus the signaling is in-band (in the same wavelength). It would have been obvious to one of ordinary skill in the art at the time of the invention that the JIT system of Wei et al. could alternately function using in-band signaling, as taught by Qiao et al., in order to provide packet-switching-like JIT signaling, with the traffic burst durations and optical buffers optimally matched to avoid dropped bursts, to provide the advantage of the short setup time

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achievable when the control information travels on the same wavelength as the data (i.e. the signaling for one path not requiring setup time for multiple wavelengths).

Response to Arguments

5. Applicant's arguments filed 25 April 2005 have been fully considered but they are not persuasive.

Regarding claims 1, 3-7, 9-15, 17 and 18, the applicant argues that Wei does not disclose or suggest sending a set-up message from a node before a cross-connect at such a node may be completed. However, as previously argued by the examiner, Wei discloses initiating an initial cross-connect setup ("issuing a command to the fabric controller") while forwarding the setup message (page 2029 col. 1, see also page 2023, col. 2). In addition, fig. 4 of Wei et al. clearly shows that the setup message is sent from a first node to a next node before time $t_{sub.c}$ at the first node, where $t_{sub.c}$ is the cross-connect switching and stabilization time.

Regarding claims 8 and 16, the applicant's arguments submitted 25 April 2005 are substantially the same as the applicant's arguments submitted 20 August 2004, except for the applicant mentioning that the arguments are presented again *in spite of* the examiner's Response to Arguments in the office action of 25 January 2005. Therefore, since the applicant did not address the substance of the examiner's previous arguments with respect to claims 8 and 16, the examiner's response provided in the office action of 25 January 2005 remains, with a further comment in response to the applicant's "principle of operation" argument based on MPEP 2143.01. Combining Qiao with Wei does not change the "principle of operation" of Wei. The principle of operation of Wei is the "just-in-time" switching principle for WDM switching networks. Qiao teaches the "just-enough-time" switching principle in optical networks, which is

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analogous to Wei's "just-in-time" switching (Wei, on page 2000, even refers to a Qiao article, the title of which, "A high-speed protocol for bursty traffic in optical networks", is nearly the same as the title of the Qiao reference of the rejection, "Just-Enough-Time (JET): A high-speed protocol for bursty traffic in optical networks"), and Qiao in no way requires the WDM principle of Wei to be changed in order for its in-band signaling teaching to be applicable to Wei.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Conclusion

7. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the

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organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600